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A

PRACTICAL TREATISE

ON

CHOLERA.

Wm Stark
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ON

CHOLERA,

AS IT HAS APPEARED IN VARIOUS PARTS OF

THE METROPOLIS.

BY

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LONDON:

PUBLISHED BY SMITH, ELDER AND CO., CORNHILL.

1832.

LONDON:

PRINTED BY STEWART AND CO.
OLD BAILEY.

This Treatise is Dedicated

TO

WILLIAM BABINGTON, M.D. F.R.S.

AS A PROOF

THAT ITS AUTHORS UNITE IN THE FEELING OF

ESTEEM, AFFECTION AND RESPECT,

WITH WHICH HE IS REGARDED BY A PROFESSION

TO WHOSE BODY HE HAS SO LONG BEEN

A DISTINGUISHED ORNAMENT.

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INTRODUCTION.

THE following pages are intended to comprise a faithful narrative of the subject to which they refer, and will not contain a disquisition on the nature of Cholera, nor a theoretic enquiry into its mode of cure. It would be foreign to our purpose to discuss, whether the malady, of which we are about to treat, be the same in its essence as that which has made such ravages in the Eastern world, or whether it has existed at any previous period in this country? It is sufficient to know, that a disease, which does not seem amenable to any definite laws, — which has hitherto baffled investigation, and proved more fatal than any malady, to which it can be considered either allied, or similar in its symptoms, has been, and is still greatly adding to the usual ratio of mortality, and that to this disease the name of "Cholera" has been assigned.

Its first irruption in these parts took place early in February last, in Southwark, from which time up to the present, it has never entirely ceased, although it has observed two distinct periods of rise, height, and decline; each period having been marked by peculiarities. It appeared in the winter (the wind being for a long time east and north-easterly), and was confined principally to the Surrey side of the Thames. Other places, however, felt its influence, particularly Chelsea,—the Eastern parts of the metropolis also, which were near the river, *e. g.* Limehouse, Whitechapel, &c.; and many cases occurred amongst the shipping on the river: whilst the western, and north-western parts of the metropolis, and the city especially, remained comparatively unvisited. It fell principally, almost wholly, on the lower classes of society. By the middle and latter part of March it had attained its acmè, and at the end of April had subsided, but never ceased; — the weather being warmer, but the wind, with little variation, remaining in the cold quarters. In June it returned; all parts of London, and most of the Suburbs, felt its influence: the city was severely visited; all ranks of life became affected; and the fine-drawn speculations of some, respecting the immunity of certain places, which were unvisited at its first appearance, and the assurances of the security of the affluent, have been proved to be erroneous and futile. In July and August it

had again reached its height, and is now (middle of September) rapidly declining. The weather, during its greatest prevalence, has been most seasonable, and remarkably fine: the wind has been south, west, and south-westerly, and the malignity of the disease has, in the last irruption, been greater than it was in the first. This, however, has not been uniform; for a short period, cases have assumed a milder type, and seemed to have been benefited by a certain line of practice; these have been followed in a few days by a succession of others of the most malignant character, and the same remedies have proved wholly inefficacious; whilst the cause of this has been involved in as much obscurity, as was the reason of the marked distinction which the disease observed in the choice of its victims during its first and second irruptions. It has pursued its course heedless of

"Winter's cold, or summer's parching heat."

There seems to be a peculiarity in human nature, which would have the mind disbelieve that which it hopes to be untrue, and to this failing we would ascribe the conduct of many on the first appearance of Cholera as its prime agent. The naked truth has, however, long since prevailed, and it is the duty of every one to assist in mitigating the visitation.

To what cause the first appearance of the dis-

ease here is to be ascribed, is not now worth disputing; neither have we much space to devote to the means by which it may have been disseminated; but we feel that we ought not to pass by in silence the disputed point of its contagious or infectious nature. If, by these terms, either, or both, be meant, the power of one body labouring under disease, to generate a specific poison, which can communicate to, or cause the same specific disease to arise in another, we simply state our conviction that the bodies of patients labouring under Cholera are possessed of such a power, and that, consequently, the disease is contagious or infectious: but to expect to be always able to detect the operation of such an agent in Cholera, is as unreasonable (particularly when the air is contaminated by a poison) as to look for the source whence a person may have contracted the virus or morbid impression which has induced other diseases acknowledged to be contagious, with the expectation of invariably finding it. Neither do we admit the propriety of the term "contingent contagion," which we believe to be supported by a species of paralogism, to which all sound argument is opposed. If by it be meant, that an entirely new property is superadded to a disease by external agents, we deny the position "in toto;" if it means that the disease is contagious under certain circumstances, we cannot admit it as a term of distinction, because all diseases may

be said to be so, inasmuch as they do not always shew that they have such a property: "for in infection and contagion from body to body, as the plague, and the like, the infection is received many times by the body passive; but yet is, by the strength and good disposition thereof, repulsed."* Cow-pox virus is contagious, under the circumstance of its being *inoculated* into a body capable of receiving its influence. Small-pox virus does not ordinarily affect those who have been fortified by the vaccine action, because the natural property is counteracted by a superior power, but the property is not, on such an account, the less inherent in small-pox virus. The real explanation of these things we believe to be, that external or certain circumstances have the power either of developing, counteracting, or mitigating, the naturally inherent contagious qualities of a disease, but we must again pause before we admit their power of generating a property entirely new. We know not what other meaning to attach to the term, and look upon the epithet "contingent" as superfluous, and "contingent contagion" as paradoxical. The notion of the doctrine of contagion being disheartening or injurious in its operations, is from an erroneous view of its bearing, and a total misapprehension of its principle; and to arraign a doctrine as unchristian in its effects, appears to us to be a censure on him

* Bacon.

who ordained it. The error lies with those who misunderstand its nature, and from it form wrong deductions, and does not rest with *the* doctrine or its supporters; and if we could choose between such a disease as cholera being contagious or otherwise, we believe that a right view would lead us to prefer that it should be the former. These remarks may appear, at first sight, speculative, but will be found, on examination, to have a practical tendency.

Precautionary Measures.

That the fears of many should have induced them to adopt some precautionary measures, was not unnatural; but, as might have been expected, such means have in many instances proved insufficient, and in others quite unnecessary. Many articles of diet have been proscribed as unwholesome.

Protecting belts, anticholera medicines, spells, charms, and bags to dispel infection, have been recommended; but they have been condemned or approved of, according to the caprice or judgment of individuals.

One will say, that the adoption of such means tends to keep alive fear; another maintains that, although in themselves inert, they will quiet apprehension;—they certainly will often induce

people to watch themselves, and attend to their ailments; but they are likewise likely to lull into a false security. The only precautionary measures which we would recommend, are temperance, cleanliness, and avoiding, as much as is consistent with duty, unnecessary exposure to those who are diseased.

Under "Temperance," much is included. It will comprise the luxuries of the table, the indulgences of pleasure, and the pursuits of business.

It is obvious that all things which are indigestible, or are known habitually to disagree, either individually, or generally, ought to be shunned:— excesses of all kinds should be avoided: — those who indulge in richly seasoned viands, should be warned, that the stomach will not always bear a crowd of delicacies to be heaped into it with impunity; whilst those whose mode of living is innutritious and meagre, ought gradually to increase it; but to follow this recommendation is not in the power of those to whom it is addressed, without the aid of charity and benevolence. The popular notion of fish, vegetables, and fruit, being injurious, has little foundation in fact; if taken in excess, they will of course be noxious at all times, but as far as our personal testimony goes, we have no reason to mark out these as particular exciting causes of cholera.

Acid drinks and sour fermented liquors are injurious, and perhaps ale, beer, and porter, have

been as destructive as the drams in which the populace indulge; for it is well known that much of the malt liquors has been, lately, notedly bad, and to such their ill effect may be ascribed.

Pleasures of all kinds pursued so as to weaken the bodily power, must naturally increase the liability to disease; and this applies likewise to fatigue, whether arising from over-exertion of the body, or anxiety induced by the cares of business; for the depressing passions, it need not be remarked, will render the system susceptible of impressions.

Cheerfulness and firmness of mind, though not always at command, are as valuable as cleanliness of person is conducive to health.—Needless exposure to probable sources of disease, form a part of general measures, the propriety of which must be self-apparent. Some patients will resist the specific effect of mercury. Let us extend the rule; a person is exposed to a morbid poison, and is not affected by it; some hidden cause prevents the usual consequence of the mineral, a cause alike unseen counteracts the frequent effect of the animal poison:—the analogy need not be pursued farther.

To those who think that we have not sufficiently insisted on precautionary measures, against those causes which are immediately supposed to induce the disease, we reply that we have mentioned all to which an allusion is authorized by what we have witnessed; and if we call to mind

the different seasons of the year at which the disease appeared, and was most rife, the different articles of diet which were in use at each period, and the cases which have occurred not individually, but collectively; we shall see ample reason to look for other causes, although we by no means discard the idea of dietetic regulations as superfluous.

We shall now pass on to the consideration of cholera, and shall look upon the disease as a series of consecutive symptoms, all of which are not essential to its existence. It will be treated of under the following heads:

1. Premonitory symptoms.
2. The stage of collapse.
3. Pathology of cholera.
4. Sequelæ or consequences of cholera.
5. Experience of different plans of treatment.

We have forborne adding to our pages, by a detail of cases which must of necessity in their tenour, be consonant with our opinions.

This little essay is now laid before the profession; its pretensions are as humble, as its execution is imperfect, but the authors hope that it will tend to alleviate the calamity under which mankind are suffering.

PREMONITORY SYMPTOMS.

The term premonitory symptoms implies all those deviations from health, which, from their so constantly and almost invariably preceding attacks of confirmed cholera, must be considered as connected with and forming a part of that disease; and although there may be many affections so slight as to make it seem improper to affix to them the name of cholera, the certainty that they do exist, in by far the majority of cases, at one period or other, will justify their being considered as a part however mild, of a most fatal disease, by whatever name such premonitory symptoms may, at the time of their existence, be called — whether they commence in the disguise of the mildest diarrhœa, which may continue for several days, and may be allowed to pass on to the aggravated condition known as "collapse," or in that more malignant form, in which the transition from a state of health to complete and confirmed Cholera, is as rapid in its progress as it is fatal in its natural result.

The late prevalence of erratic abdominal pains, attended by fullness and uneasiness in the epigas-

trium, has been so general that it need not be insisted on.

The disease, as it has occurred to us in this metropolis, is almost invariably preceded by an irritable condition of the bowels or actual diarrhœa, varying in its intensity and duration from one hour, to two, three or more days; occasionally even a longer period; prior to which anomalous feelings may have been experienced in the abdomen, especially a griping pain in the epigastric and umbilical regions; and a state of constipation may even have pre-existed, but frequently mere diarrhœa is present, and the ease with which the bowels are evacuated, and the freedom from all pain, deludes the victim into a belief that his ailments do not require attention, and that "all will soon be right." Occasionally the complaints first attract notice, from nausea and sickness coming on, and in other cases the patient experiences, at first, an acute attack of pain, either in the stomach or colon, or is seized (though more rarely) with cramps in the extremities. The diarrhœa, in some instances, is soon followed by vomiting; in others, they both commence together. It is in these early stages that the complaint is certainly remediable under judicious treatment, variously adapted to the form of attack, the length of time which it may have existed, the rapidity of the progress which it has already made, and the condition and powers of the patient.

For the sake of pointing out the different modes of treatment, which are suitable at different periods, according to the varied form of the complaint, the premonitory symptoms may be considered under the three following heads: —

1st. Tormina, with or without an irregular state of the primæ viæ.

2d. Diarrhœa, in which the alvine discharges are bilious and fœculent, accompanied occasionally by sickness, abdominal pain, and (more rarely) cramps in the extremities.

3d. Diarrhœa, in which the alvine discharges are principally or wholly serous, often accompanied by vomiting and cramps, the evacuations being rapid and profuse, the system being depressed, but before collapse has come on.

1st. *Tormina*, &c. — A permanent removal of tormina is not easily effected; and many are content to endure the uneasiness without resorting to medical assistance, and merely make use of those domestic means which are always at their command. Under severe attacks, however, they are compelled to seek for farther aid, and a warm cordial with an opiate rarely fails to give relief, but it is necessary afterwards to secure a proper evacuation of the primæ viæ, and if requisite, to recur after this has been effected, to carminative medicine, with occasional anodynes.

2d. Diarrhœa in which the alvine discharges

are fæculent and bilious, accompanied occasionally by sickness, abdominal pain and (more rarely) cramps in the extremities.

The manner in which this class of premonitory symptoms presents itself, is so similar to ordinary "English cholera," "bowel complaint," or "bilious attack," that a distinction between the two is scarcely possible, and fortunately* is not needed; the same principles of treatment being applicable to both; on which account any illness, thus commencing, should not be neglected under the hope that it will now terminate as it may have done previously. In this form or stage of the complaint it is expedient to discriminate as to the propriety of a suitable mode of practice, for it may be necessary to *evacuate* the upper part of the alimentary canal; it may be proper to *correct* the undue secretions, and carry them off by a purgative; but it is often necessary at once to *stop* the *discharges*.

If a few hours after having partaken of a meal, the materials of which may not, in themselves, have been unwholesome, there is a frequent call to evacuate the bowels, accompanied by nausea or retching, and a sense of weight at the epigastrium, perhaps with a headache, the most perfect relief will be obtained by inducing full vomiting, which

* Fortunate, so far as regards any peculiarity in the treatment, except the greater necessity of immediate attention to the seizures which form the subject of this section.

may nearly always be effected by copious draughts of warm water only ; and in this way a total check will be often given to every symptom; whether by evacuating any offending matter, or by the shock given to the system, it is not our purpose here to inquire. If this be insufficient it may be proper to have recourse to astringent and opiate medicine (such as will be recommended when alluding to those cases in which it is right to stop the evacuations) modified according to the urgency of the disease.

That diarrhœa is often accompanied and kept up by an imperfect evacuation of the primæ viæ, must have been witnessed by every one in the profession. There is in these cases, for the most part, a frequent desire to relieve the bowels, but little more than a thin fæculent fluid is passed, often mixed with scybalæ; there may be sickness and depression, and there is generally colicky or griping pain, but the abdomen does not feel empty on pressure, and if an attempt is made directly to stop the action of the bowels, it may succeed, but a febrile attack supervenes, and no permanent relief is given: the object should be to carry off the unevacuated matter. This will often be effected by a draught of rhubarb and magnesia in some aromatic water, with a few drops of liq. opii sed.; or the undue desire to evacuate the bowels may be corrected by a dose of castor oil containing ten or fifteen drops of t. opii;

but the most effectual means are to give a combination of calomel (gr. ii) and opium (gr. i), by which the sickness and pain will be often allayed, and after the lapse of two hours, to exhibit a mild unirritating purgative, than which none will be more effectual than castor oil; by these, or such like means, the symptoms will be in general wholly removed, and the necessity of the plan will be proved by the copious evacuation of bilious or of fæculent matter; this having been effected, especial care should be taken to guard against the undue continuance of the action of the purgative, and, if necessary, an anodyne may be given with marked benefit to the patient.

There now and then exists such great irritability of stomach, that nothing will be retained until that state is allayed; but the common principles of treatment will apply to such an emergency. These attacks now and then subside without medical aid, and they can hardly be said to be attended with danger, there being such ample time for the adoption of an effectual mode of relief. Far different is it when an individual in previous good health, or with so little ailment as to be considered well, is seized suddenly with diarrhœa, his bowels may have been slightly disordered for two, three, or more days; and he may have from ten to twelve evacuations at least in the course of the night; or he shall have four, five, or six motions in quck succession, all possibly within

a period of one or two hours. This may come on suddenly, without previous intestinal derangement; it may perchance be attended with tormina, or more severe pain, with soreness at the epigastrium, or the individual, as soon as the call to evacuate the bowels has been relieved, may feel well. If the evacuations are examined, they will be found to be copious and fæculent, though thin, and frequently, the patient will vomit when the bowels are being moved. Whatever may be urged as the indication in such a case, the object which we would recommend (and we feel justified in doing so by the success which we have witnessed) is *at once to stop the discharges*, and this may be done safely and (according to all human reason) certainly by full, effectual, and repeated doses of *opium*. There is no time for correcting morbid secretions, this (although we by no means would say that the purging never ceases before nature is exhausted) is the sure precursor of, and is rapidly approaching to the most fatal stage of a most malignant and fatal disease. How many who have gone to bed "well," have been seized with diarrhœa in the night — have passed in six or eight hours twice as many motions — have not thought it "worth while" to resort to medical aid till the morning — but the dawn has found them in pulseless collapse — and in the evening they have been dead! At this period of the complaint many popular remedies and "quack

medicines" have obtained celebrity, some deservedly so: a warm cordial has now and then checked the purging: tinct. rhœi is very frequently taken, and in almost every instance with the effect of increasing the diarrhœa, if the stomach retains it. Not a few of the nostrums obviously contain laudanum, and from these it cannot be denied that good effects have arisen. Brandy and laudanum are kept by many ready prepared to exhibit immediately on the "first attack of cholera;" to all of these a valid objection applies—the uncertainty of their operation: they as medicines are intrinsically valuable, but the occasional good which attends them is the effect of chance; besides which their indiscriminate exhibition (independent of the harm which they often occasion when unnecessarily given) occupies the time which ought to be devoted to efficacious medicines, judiciously adapted to circumstances.

The views of others may have induced them to adopt different methods of treatment from those herein detailed. Calomel and opium, or calomel alone in various doses, may be suggested by their experience; but after the success which we have witnessed, and its immunity from ill consequences, we can only state that we consider *opium* as the sheet-anchor by which we can *stay* the disease, and as *the* remedy which affords the most speedy, effectual, and permanent relief to the patient. The existence of cramps

affords no argument against, but rather an additional reason for its exhibition; and it is often the only medicine which the stomach will retain. There may be peculiar constitutions,* either natural or arising from disease, which may appear to forbid its use, but it is remarkable how little is experienced from its narcotic qualities, when the system has been reduced by diarrhœa. In order to give opium with due effect, it is necessary to commence in an adult with at least two grains of purified opium, in the form of a pill; and the best indication for its repetition is the recurrence of the alvine discharges, which often cease after the first full dose; if they should not do so, it will be necessary to give half a grain (in the form of a pill) after every motion; and it may be followed (if there is no irritability of stomach) by an aromatic cretaceous draught. It is now and then requisite, on account of the first pills having been rejected, to repeat them, and occasionally to persevere in giving one-grain doses, particularly when fluid medicine cannot be retained. We have sometimes combined two or five grains of calomel with the first full dose of opium, and one grain with each repetition; but we are not satisfied of the advantage of so doing in this state.

The usual effect of this treatment is the almost immediate interruption of the evacuations; if they

* A previous attack of apoplexy, or a person in whom such an attack might be apprehended, may illustrate what is here meant.

do not cease, the opiates must be continued until they produce an effect, and we have never witnessed any ill result from persevering in them whilst the diarrhœa has continued. When the purging has ceased, there is but little need of medicines; a well-neutralized saline draught, or tartrate soda in effervescence, will prove grateful; and caudle or beef-tea may be allowed in small quantities. There is no necessity for the early exhibition of purgatives; in fact the bowels will often act spontaneously in a few hours; but two whole days may be allowed to elapse before any aperient is given, at the end of which time it will be advisable to give a small dose of castor-oil, rhubarb and magnesia, or ext. col. comp. with a little ext. hyoscyami, taking care to guard against their undue operation. After this, patients will often derive benefit from the use of the pulv. cretæ comp., with or without opium, according to circumstances, or from some other warm aromatic tonic.

3d. Diarrhœa, in which the alvine discharges are principally or wholly serous, often accompanied by vomiting and cramps, the evacuations being rapid and profuse, the system depressed, but before collapse has come on.

If the disease has existed a longer time than has been supposed in the previous consideration, or has made more rapid progress, the necessity of an energetic and decisive treatment is increased tenfold — the malady has made a fearful advance.

The patient remarks that his motions run from him "just like water;" he is almost afraid to leave the water-closet; the kidneys have already ceased to secrete; temporary stimulus has been afforded by brandy and water; the looks are haggard; the pulse is feeble, and the skin cool; the evacuations, if examined, will be found to contain thin fæculent matter of a faint nauseous smell, mixed with a serous fluid; or they may be of the "rice-water" character only.* The patient vomits occasionally, and complains of unusual langour; he is now on the brink of collapse, and if the discharge from the bowels is allowed to continue, will most assuredly fall into it. The mere existence, however, of these symptoms does not constitute "collapse," although no system will long bear the profuse drain which has been set up. In this state there is the greatest need of the exercise of the soundest discretion; it must be ever remembered that the vital powers of some constitutions give way as soon as these symptoms come on, particularly if they have rapidly succeeded the first stage.† This last remark applies especially to all robust plethoric people, particularly when they have passed the middle period of life; and to elderly persons like-

* We have occasionally seen blood in the evacuations of the subjects of these profuse purgings; it seems to be connected with an unhealthy state of the mucous membrane of the bowels, and has generally occurred in those who have previously had dysentery.

† See note, p. 32.

wise. If, however, the patient is of good natural bodily powers, the disease may in this stage even be arrested by the promptest and most decisive treatment. To *stop the discharges* and *stimulate the flagging powers*, are now the immediate indications, and any means which risk the continuance of the purging are less preferable in proportion to the degree of such hazard. It has been said that the object is to *stop the discharges*, and nothing will effect this more, nay, so speedily, as *opium* in *full* and *efficient* doses.

The patient should be placed in bed between warm blankets and two grains of opium given, and followed immediately by a draught of the following nature: —

Sp. myrist. vel. sp. junip. comp. ʒx.
Sp. ammon. aromat. ʒi.
Vin. opii. ♏xx. Misce.

If these are retained on the stomach, it will be proper to wait, lest, by giving more, vomiting should be induced; and it is better to trust, for one hour at least, to the above medicines (if they are not rejected) before any thing else is given. If they are returned from the stomach, it will be necessary to repeat them, and, if the purging continues, to administer the following enema: —

Decoct. amyli ℥i.
Tr. opii. ♏xl.
Vel vini. opii. ʒss. ft. enema.

which may be repeated likewise with half the

quantity of the tr. or vin. opii., if expelled within a reasonable time. It occasionally happens that not more than one, sometimes not a single, evacuation follows after this, and the patient rallies from his depression; notwitstanding which, cramps will come on. These need not excite alarm; they will readily yield to hot fomentations, particularly if the system is influenced by opium. The case is henceforth easily managed, but cordials with small opiates should be continued. In a few instances, chiefly those in which the medicines are rejected, the serous purging continues, though diminished, and although the tendency to collapse is checked, the patient does not rally, but remains in the same depressed condition, but without becoming worse, *i. e.* in mild collapse,—a state which requires but little active treatment, and to which various plans have been recommended, as highly successful by their respective advocates, we believe the fact to be, that by a mild, judicious, attention, the patient may generally be steered through this stage; and there is much fear lest, in the over-anxiety to relieve, too active measures should be used; and, although the consideration of the necessary treatment will be entertained hereafter, we may state here that mild occasional opiate enemata, with small doses of calomel and opium, and a little brandy or port wine and water, or tartrate of soda in effervescence, will be the best adjuvants to the "vis medicatrix naturæ." Often-

times a little good beef-tea or caudle will be the best medicine.

It does sometimes happen that the rice-water purging goes on under this mild treatment, and although the collapse does not seem to increase, the serous exudation is not easily restrained. The system may be influenced by calomel, but it will still continue; and, if unchecked, will at last bring on collapse. The only way, so far as we know of treating such cases, is to bring the system fairly under the influence of opium; and the best mode of doing so, is by the *frequent* exhibition of laudanum enemata. In the subsequent management there is ordinarily but little difficulty; but if any symptoms should appear which are attributed to the remedies used, they will only require ordinary treatment, and if any little febrile action arises, it will generally soon subside. By far the greater number of patients would indulge the following day in their usual habits, if they were permitted to do so by their attendant, or were not prevented by a feeling of debility, though in more rare instances the patient merges into a state of fever, similar to that which will be considered as the consecutive fever of collapse, though it seems to have no reference either to the degree of the preceding symptoms, or the treatment which has been directed to them. The same remarks which applied to common or bilious diarrhœa, respecting purgatives, will suit now.

The bowels will often act of themselves, otherwise it will be proper to give an aperient on the third day. The most strict attention must for a long period be paid to regimen, the least error in which will often cause a relapse. Coffee, gruel, nourishing broths, and afterwards light animal food should be the principal diet, carefully avoiding all kinds of beer and acid wines. The infus. cascarillæ, infus. calumbæ, or pulv. cretæ comp., with aromatics and occasional anodynes, may prove very beneficial; and the nature of the alvine secretions should be constantly watched, as a dysenteric state is not unlikely to be induced. It need not be remarked that other *latent* diseases may be called into action, but these have no specific reference to the antecedent illness.

There are other modes of practice to which allusion ought to be made, the principal ones being

1. Blood-letting.
2. Active purgatives.
3. The administration of the "non-purgative neutral salts," commonly called the saline treatment.

Not having found it necessary to resort to the two first, our experience of them has been limited.

1st. With respect to blood-letting, however, we should not be averse to its adoption, if the disease assumed a form in which the cramps bore an undue proportion to the severity of the other symptoms.

2nd. We do not know, however, that we could easily persuade ourselves to resort to active cathartics, for the cure of a disease which is often induced by the means which would be adopted for its relief, and we have seen the administration of a purgative, after the primary diarrhœa had been checked, decidedly bring back the symptoms which previous treatment had removed, and which again yielded to the same measures.

3rd. The saline treatment has been warmly recommended in all stages of cholera, because it has succeeded where other remedies had failed: our opinion of it in "collapse" will be stated hereafter. That the remedies which we have mentioned in the foregoing pages have failed, we of course cannot admit; and the clue to the reason for such an opinion having been entertained, may be gathered from the narrative of some cases which have been published; one in particular, by Mr. Whitmore, in the Med. Gaz. of May 21st, to which we refer our readers for an instance of a reputed failure of the "usual remedies" "fairly tried," as the advocates of the saline treatment have expressed it. After a careful perusal of the case above alluded to, we are not surprised to read the confession of a * modern author who has since republished it, that collapse in his experience was *generally* prevented by salines, when the cases were "seen early," that "one half of his cases

* Dr. Stevens.

would have been lost if he had used common remedies;" that "opium, chalk, and other astringents, which are generally useful in common bowel-complaints, are of no avail in checking the diarrhœa, or specific ejections induced by the cholera poison." We hesitate not to affirm, that we have never had the misfortune to attend a case which went on to collapse, when "seen early," and put on the plan which we have recommended; but we have seen others, and have ourselves been obliged to leave off the salines, in consequence of all the symptoms becoming greatly aggravated under their use; and the change which has followed their being withdrawn has been most gratifying and satisfactory. That they have succeeded in allaying diarrhœa is readily allowed, but it is as well known that the carbonate of soda will occasionally allay irritation in the bowels, as that vomiting has often been induced by the salines, and has prohibited their administration, even where it has not added to the purging and allowed the supervention of collapse. In the premonitory diarrhœa, we look upon the adoption of the saline treatment as unwarranted by the failure of other remedies "fairly tried," and as, at best, uncertain in its effects.

The foregoing considerations do not apply to cases of "collapse." We have considered the system as merely depressed, and when it admits of a plan of treatment which would be highly in-

jurious, if the disease had advanced to a further stage.

We are well aware, that the plan which we have adopted, has been condemned by many whom we respect, and from whom we are sorry to differ; we only say that bed-side experience has led us, (not over hastily we hope) to the opinions herein expressed.

This section cannot be concluded without declaring our conviction, that in every case of cholera, as it exists here, (for the exceptions are so few as to be scarcely worthy of notice), there *is a period* (short, it is true, in some instances) in which the disease may be safely and surely remedied or prevented from advancing to its malignant stage. The diarrhœa is a sure herald, and fortunate will it be, if the mercy of *Providence* shall continue to allow such a harbinger of the disease in future.

If these few lines should chance to meet the eye of any body, without the sphere of our profession, we would strenuously urge this upon his attention. He is the guardian of his own life, and we feel it our duty openly to state that the mortality, which has attended the cholera in this country, (slight in comparison as it may have been), is principally, and almost universally, to be attributed to the imprudence of those, who have neglected to attend to the warning, which has been afforded them by the premonitory symptoms.

THE STAGE OF COLLAPSE.

By the term "Collapse," we mean to designate that stage of the disease which succeeds the serous purging, being characterized by loss of pulse and other symptoms that will be presently noticed, and which constitutes the grand mark of distinction between cholera and those maladies that are indigenous in this country, and in some points bear a resemblance to it.

This state usually comes on within from two to six, or eight hours from the commencement of serous purging; its approach is ushered in by a noise of singing in the ears, and dimness of sight, and is attended by an increase of purging; the patient experiences frequent, almost incessant calls to use the pan — the evacuations being discharged with great force from the rectum, and becoming at every succeeding time less under the voluntary controul. The stomach is irritable and rejects every thing — the vomiting is accompanied by much distress, and followed immediately by spasms of the flexor muscles of the toes and fingers, and of the calves of the legs, reaching fre-

quently up the thighs, and affecting the abdominal muscles, perhaps even the diaphragm.

In robust individuals these cramps are very severe — the hands become cool — the back of the fingers being the first to assume a sodden, shrunken aspect; the features are cool, especially about the lips which are bloodless and cold. The eyes are retracted within their orbits, and surrounded by a dark areola of more or less extent and intensity, the eye-lids are half-open; the pupils contracted; the tongue sometimes furred, but often perfectly clean, pallid and cold. We have seen cases where the thermometer underneath the tongue rose only to 71° Fahrenheit. The patient urgently calls for cold water to quench his thirst, which for the most part is instantly vomited back; the skin is inelastic, it may be pinched up and moulded into any form without recovering itself. The pulse begins to falter, it is feeble and irregular, though just before and during the efforts of vomiting it becomes strengthened and accelerated for a few beats. The breath is cool — the voice feeble and husky — the breathing difficult and quickened — it is of the kind termed by Laennec "Respiration haute" that is, the expiration is never complete, being quickly interrupted by a hasty inspiration. There is a feeling of oppression rather than of pain about the pit of the stomach, and the general expression of the features is that of anxiety and peculiar distress.

In proportion as the disease advances, these symptoms increase; the thirst becomes intense, the cramps more severe; in some cases a dew appears about the alæ nasi and forehead, beads of moisture stand out on the forehead and features, and the whole body is bathed in profuse perspiration; the hands in consequence appear sodden and shrunken, the patient is restless and uneasy, tossing off the clothes from a feeling of excessive heat; the eye is more sunken and glassy; the pulse from being more rapid, gradually stops at the wrist; the purging is involuntary, and when there is no sweating, profuse; it generally, however, gradually ceases towards the last; the vomiting in like manner subsides, and the cramps are less severe; the respiration becomes much quickened, and is attended by frequent sighing. In a minority of instances, the hands and features assume a congested and livid or leaden hue, the ears being the first to exhibit this appearance. If the sufferer is to die, intense aching pain in the loins or belly comes on about this time; his vision is quite lost: a short interval of ease succeeds, and death puts an end to his sufferings in from 6 to 8, 10, 12, or 20 hours generally from the invasion of collapse.

It is deserving of remark, that though the vital energies seem completely crushed; yet is the mind perfectly collected to the last; there is a singular apathy respecting all worldly concerns, the individual seems unconscious of his danger, asks no

questions about himself, and takes no heed of what is passing around him.

This is the usual progress of uncontrolled cholera. The symptoms, of course, vary, according to the circumstances of age; previous health, or habits of life.

Cramps are most severe in young and muscular subjects, and are slight, or totally absent in those debilitated by age and long previous ill-health.

Vomiting is frequently wanting. We have not ascertained the conditions under which this symptom is modified, but we have thought that an irritable stomach has been a more constant attendant on the illness of young persons, than on that of others: a great deal of it is undoubtedly artificial, depending on the nature of the fluids that may have been administered for the cure of the disease.

Purging is always present in some degree or other; in many persons it is not copious; nevertheless we believe, that with an anomalous exception or two, it exists in all; in the greater number of individuals it is profuse: in many, and these perhaps the most rapid cases, occurring in gross habits of body, and in those at or beyond the middle period of life, purging ceases very early; and, though the two now and then co-exist, gives place to an abundant perspiration from the whole body — so abundant, that the linen and other clothing are completely soaked therewith.

Sweating is occasionally met with before col-

lapse; when this is the case the premonitory stage is very short, and the patient quickly passes into collapse, often with scarcely any purging and but little vomiting; and so far as we have observed, such persons invariably die: — cramps are a pretty constant attendant in severe degree on sweating.*

The *secretion of urine* is ordinarily arrested during the progress of these symptoms; but there are exceptions to this; for we have met with several examples where urine has been passed throughout the illness, even till within a few minutes before the last breath.

When recovery from collapse is about to take place, the patient, who may have lain in this state many hours, turns quietly on his side as if to compose himself to sleep; he complains less of thirst; the hands and features begin to lose their coldness;

* It is *most important* to recollect that this class of cases, except at a very early period indeed of the premonitory stage, are not amenable to the treatment we have laid down as beneficial in the first stages of Cholera generally. They occur in robust and full-bodied individuals, in whom the serous purging comes on early; sweating soon follows; the pulse never ceases till near death, and the temperature of the body is maintained up to a very late period of the disease. Opium, administered largely to such persons, checks the diarrhœa indeed, but appears to subdue at once the nervous energy, and certainly hastens the fatal termination. This state may fairly enough be regarded as a peculiar type or form of collapse, and is to be treated by mercurials (*and not by opium*), on the principles that will be recommended as applicable to actual collapse itself.

a feeble pulsation at the wrist is felt occasionally, which gradually acquires greater steadiness, and is more distinct; the cramps recur less frequently, and are not so severe; the evacuations are diminished in quantity and less watery in quality, the natural secretions are gradually restored; the evacuations give out a fæculent smell, and then become increasingly bilious and fæculent; urine soon follows; it is passed largely, it is limpid like that of hysteria, and often exceeds in measure the whole quantity of the fluids that are drunk; vomiting subsides; the countenance resumes its fullness, and the eye its natural expression; the skin regains its elasticity; the voice its firmness; and except that the patient is drowsy, and sleeps much during the next two or three days, with a very slow pulse, it frequently happens that no consecutive fever arises to interrupt his speedy and complete recovery.

In young persons reaction sometimes takes place more rapidly than this, and the secretions are restored with even less delay. A full bilious stool, resembling a mess of spinache, is passed very soon after the pulse and warmth have returned, and is accompanied by a copious discharge of clear acid urine. The authors have witnessed several such instances, where the young patients have speedily got well in this manner, after the usual drowsiness.

Occasionally as reaction comes on, the tongue

becomes, dry—vomiting, instead of diminishing, increases, and is bilious — there is tenderness of epigastrium — general febrile symptoms supervene, and the patient enters upon that stage which will be more fully treated of in a succeeding chapter.

The prognosis of confirmed collapse is commonly unfavourable. The symptoms that in our experience preclude all expectation of recovery, are - restlessness, sighing, intense pain in the loins, and, above all, loss of vision. Bloody stools are likewise always mortal; they never occur in young persons, and appear to depend on some organic disease of the vascular system generally, and of the capillaries of the intestines especially. The absence of these symptoms on the other hand, together with tranquil breathing, will justify us in entertaining a reasonable hope of ultimate recovery.

TREATMENT OF COLLAPSE.

We enter upon this division of our subject with that hesitation which necessarily arises from a consciousness of the difficulties that on every side surround it. When we survey the past history of cholera, and examine the numerous remedies that have at different times obtained the sanction of authority and the support of public favour—when we reflect upon the vast contrariety of evidence applied to this subject—and when we find that articles the most opposite in their effects, have, from accident or otherwise, acquired in their turn a certain share of patronage—when we find, moreover, that each method of treatment has been justified by a corresponding set of opinions, as totally dissimilar from one another as are the remedies themselves, that are advocated by their respective authors, we cannot resist a powerful feeling of conviction, that medicine is still deficient in a means which can fairly be regarded as a specific against the disease.

Many of the remedies to which we allude, we have ourselves tried; we can safely affirm that our anxious object has been to possess ourselves

of some efficient means whereby the mortality of the malady might be mitigated. We have followed up each plan that we had resolved to test, fairly, fully, and, we trust, without bias either towards or against it; and according to the evidence that we have hitherto collected, we regret to say that we have found cholera, in *decided collapse*, to be generally fatal — generally fatal, but not always — for there are cases in which, by judicious management and the nicest care, patients may be steered safely out from amongst the perils of their situation.

In the observations that we are about to offer on this subject, we shall not seek to enter into contest respecting any line of practice, whatever, that may have been recommended by our predecessors. Each plan may have its advantages, and each may be applicable to particular circumstances. Our design is merely to present a candid, and as we hope impartial statement of the result of our proper observations. With this intention, therefore, we shall avoid unnecessary allusion to the sentiments of others; and, throwing ourselves upon the resources of our own experience, shall proceed to lay before our readers the principles upon which, as we conceive, the treatment of the collapse stage of cholera should be conducted.

During the existence of the symptoms that we have mentioned as characterizing collapse, the patient often hangs so delicately balanced between

life and death, that the minutest accident is sufficient to turn the scale. At this time it is, that a proper application of means may occasionally be followed by success.

The great error in the treatment of collapse hitherto, has been, that it has been too active. Remedy has followed remedy, and dose has been accumulated upon dose, in a manner more creditable to a sense of anxiety for the sick, than perhaps was altogether consistent with sound professional judgment. This system is now happily in rapid progress of remedy, by the uncontrolled good sense of medical men generally, who begin to see that no advantage has been derived from too energetic and complicated measures; and the general principle of cure approaches, at present, more nearly to that which we would ourselves advocate: viz. ever to bear in mind that nature is the chief agent in the cure of disease, and that medicine is only usefully applied when, with some specific object in view, it is so administered as not to interfere with, but rather to promote, her salutary endeavours.

Nature is of herself insufficient to remedy the collapse of cholera — art can here afford her valuable assistance, and it behoves us, therefore, well to consider how we may best assist her.

The most legitimate way of arriving at a just conclusion on this head, is carefully to watch those very rare instances in which, without medicine,

recovery now and then takes place from the natural efforts alone. By thus observing the phenomena and gradations of natural recovery, we shall be furnished with a model that we may safely imitate, and in following which we shall have a guide that will not be likely to lead us astray.

In natural recovery from collapse, the warmth gradually returns to the features and extremities, the vomiting ceases, the purging diminishes, the cramps subside, the circulation is restored, the secretions of health return, and the individual gets well, sometimes immediately, and at others with the interruption of consecutive symptoms.

The design of medicine should obviously be to bring about these very desirable results. The indications of cure are at once simple and manifest, and not the less certain because human art is in a majority of instances totally incompetent to accomplish them. The indications of cure are simple, so ought to be the measures adopted to fulfil them; the only difficulty is to know what are the best means by which this is to be done.

It is very far from our inclination to attempt to solve this knotty problem. We do not venture to affirm, that such and such only is the "*sine quâ non*" of treatment; our sole object and desire being freely and candidly to state the result of personal practice; and we leave it to others to determine whether our views be deserving of notice or not.

According to these views, in collapse the patient should be dressed in a flannel shirt, and placed in a warm bed between blankets, with bottles of hot water to the feet and thighs; the head should be laid rather low, and a sufficient quantity of clothing thrown over the body to render him comfortably warm. In this respect his feelings are not to be altogether disregarded: if he complain of much heat, and the general temperature of the room be pretty warm — say 70° F., a single blanket and coverlid will suffice.

Sinapisms are valuable in collapse. A good large mustard poultice to cover the belly and chest, kept on till it has excited a redness, and can no longer be borne, and then removed to the back in like manner, is of great utility in bringing back pulse to the wrist, and in promoting the warmth of the surface. It also aids in allaying irritability of stomach, when that symptom exists. Mustard poultices require this caution in their application: — if kept on too long they distress the patient, and completely wear him out, so that more harm than good may be done by them; it is always better to remove them when they have excited moderate erythema. Under this simple precaution they may be used with benefit in all cases of collapse. The authors have seldom found it necessary to keep them on longer than half an hour at a time, or thereabouts. When, however, the collapse is advanced, and the skin insensible,

they must of course be retained until they produce some effect. If the consequent erythema be of a bright colour, recovery is probable; if it be dingy and livid or leaden, death is almost certain.

We have never been satisfied of the utility of frictions: the limbs are mechanically warmed by this means, but they soon cool again; and we have seen no case in which restoration of pulse could fairly be attributed to it.*

Frictions unquestionably afford relief to cramps, and it is the common practice to rub the extremities when under this state; but by far the most effectual and grateful relief from cramp is obtained by hot fomentations, with a strong solution of salt in water, and by wrapping up the limbs in flannels soaked in that fluid. Tight ligatures also afford ease in a very marked manner, and may be used when salt and water is not convenient; but undoubtedly the best means by far is that of fomentation. Patients feel greater benefit and comfort from this than from any other part of the whole treatment.

From the time that a faltering of the pulse and other symptoms indicate the close approach of collapse, the remedies recommended in the earlier

* The pulse may often be brought back to the wrist, by merely placing the hands in a bowl of pretty warm water for a few minutes. In one case where the pulse was so brought back, the good effect was permanent.

stages are to be laid aside. Opium, which before was our sheet-anchor, will still stay the purging and quiet the cramps; but in large doses, it will now only do so by oppressing the nervous system, and crushing every effort at reaction. In collapse, large doses of opium are consequently injudicious. Our main reliance now, in the way of medicine, is to be placed in *minute* and stimulant doses of opium, combined with calomel. From two to five or six grains of the latter, and from one-sixth to one half-grain of the former, made into a pill, may be given every one, two, or three hours. If cramps be absent, and there be not much purging, the calomel may be given by itself without the opium; but when purging is profuse, and when cramps are severe—far from being injurious —opium in such doses has, in our observation, produced the happiest possible results. The object *now* is to moderate the purging, not to suddenly stop it; if, therefore, notwithstanding this administration of calomel and opium, the purging goes on uncontrolled, it will be advisable to have recourse to additional means. We have found, under such circumstances, nothing so good as small enemata of brandy and water cold, with the addition of a few drops (twenty or thirty) of laudanum or vinum opii; this may be repeated every two hours, and the relief by which it has been followed has been the indication for its general adoption.

These enemata are of capital importance where irritability of stomach is excessive.

In the intervals of the calomel and opium, we are in the habit of giving some such medicine as the following: —

℞ Ammon: subcarb. ʒss.
Sp: Myristicæ, vel. sp: Juniperi Co. ℥iss.
Aquæ menth. pip. vel. mist. camph: ʒivss. m. ft.
Mistura, sumatur pars sextâ quâque semihorâ vel sæpius,

and as we have never seen ill effects from a moderate quantity of brandy and water — the patients, particularly if they have been accustomed to such stimulants, are granted a reasonable allowance of brandy and water, gin and water, or port wine and water.

We are aware that authority is opposed to the opinion, but we have not ourselves observed bad effects produced from a moderate quantity of spirit; and though we would by no means advocate a practice in which brandy and gin were to be the sole remedy, we cannot, on the other hand, consent to banish them altogether from the articles of our materia medica.

Irritability of stomach is often a difficult symptom to combat; vomiting is constant; it is attended by much distress, and is very harassing to the patient. To allay this, various plans are recommended, none of which succeed in every case — some are applicable to one, and some to

another. That which has most frequently succeeded in our hands has been cold enemata of brandy and water, with twenty or thirty drops of laudanum, and occasional effervescing draughts with a small excess of alkali. A full dose of calomel will often stop the vomiting when other means fail; for this purpose, ten or fifteen grains may be given in form of a powder, either alone or combined with about a grain or less of pulvis opii.

We have only had satisfactory result from the subnitrate of bismuth in one case. Five grains of it were given, with ten grains of carbonate of soda, and three grains of conium powder, every three hours; and the vomiting subsided, the individual passing into consecutive fever, in which she died. An additional very useful and grateful means for staying this irritability of stomach is the nitric æther—a tea-spoonful occasionally in a little cold water.

Vomiting is not in itself a bad symptom, except where the quantity of fluid ejected exceeds that which has been administered. Recovery, indeed, may very probably be now and then effected by taking advantage of this very symptom; for, by keeping up constant vomiting, the circulation is mechanically maintained for a time, till the patient's native powers get over the original shock of the disease; but if we are to act on the principle we have laid down, and desire to avail

ourselves of its advantages, it is of the first importance to bring the stomach into such a condition that it shall not reject what is put into it.

Thirst and restlessness generally co-exist, but thirst sometimes prevails without restlessness, it subsides only with the decline of the disease, and is not immediately satisfied by any measure of drink. Thirst is obviously an indication on the part of nature for fluid, and, provided it agree with the stomach, the authors do not withhold it. Cold water, soda-water, toast-water, balm or other vegetable infusions, are in their turn grateful, and applicable each to its particular case. Fluid should be given in small quantities at a time, if it is intended to avoid vomiting. A wine-glassful is enough for once, but it may be repeated almost as often as the patient craves for it. In this manner a large measure of drink may be taken in the course of four-and-twenty hours, without disturbing the stomach.

The method of granting an unlimited indulgence in cold water is one in which the authors have little experience. They can recal to mind two or three instances in which patients have persisted in drinking water so abundantly as to keep up constant vomiting—some recovered—others died—but they know not that it altered in the least the average ratio of mortality. It is worthy of remark, that one of these patients, a child, whose sole treatment consisted in cold water, and who took

neither opium nor brandy, passed through the ordeal of a severe consecutive fever before he recovered.

In some of the earliest cases that were treated in Abchurch-lane Hospital, where restlessness and thirst were in the highest degree distressing, advantage appeared to result from the administration of very cold water enemata. In most instances they were permanently retained, although warm injections had just before been rejected; the patient became quiet, his thirst subsided, he seemed disposed to sleep, and a repetition of the plan kept up the good that had been thus obtained. Much as this plan created favourable anticipations at first, it was found in after cases not to answer the expectations that it had promised to realize, and it was consequently laid aside as useless.

Sweating.—When this is profuse and cold, it is all but a fatal symptom; there are no certain means by which it may be obviated; it sometimes subsides spontaneously in the progress of the disease, but we have hardly seen a single recovery from it. In one instance in the Borough, an active emetic seemed to check it, and the patient, being then put on gin and ammonia, got well. In other cases the same means have failed. A very robust man, a compositor to the Globe newspaper, was admitted into the hospital in Abchurch-lane, in whom the sweating was so abundant, that a prognosis was delivered that he would die within

six hours. The body was sponged all over with tincture of capsicum, so as to create a tingling sensation; the sweating ceased; and though it recurred several times, it was always under the controul of this application. This individual rallied from collapse, but died some days afterwards in a consecutive stage. Tincture of capsicum has not succeeded in stopping sweating in other instances.

The foregoing are the principles and the measures on which the authors of this essay place greatest reliance in their treatment of collapse. Circumstances will undoubtedly arise under which the details will require to be modified, whilst anomalous symptoms must be met by the judgment of the practitioner at the time. They regret to add, that they cannot hold out the prospect of a large proportion of success, not even that the majority of patients in collapse shall recover, but they do feel, and, inasmuch as they profess only to express the result of their own observation, they shall be excused for expressing a strong confidence in the measures they have ventured to recommend.

The greater number of patients in *established collapse, to which alone these remarks apply*, will perish under whatever treatment may be adopted. It is not in this stage that we can expect to combat successfully against the disease. If we would save people from drowning, we must prevent them from tumbling into the water. If we would cure

cholera, we must anticipate the stage of collapse. Let us not be dissatisfied with this arrangement of Providence; let us not waste our time in devising means whereby the dead may be brought back to life again; but let us rather be grateful that there is a period in cholera, at which it is as completely under the power and controul of medicine, as is the simplest disease to which human nature is liable!

If our endeavours be crowned with success, so that the patient has the happy fortune to get out of this stage of collapse, there still remains occasion for the nicest caution on the part of both physician and nurse, before he can be safely pronounced well. Relapses are rare, and may almost always be referred to some error of diet or indiscretion. In the recovery from collapse, as the pulse rises, and the general reaction becomes established, the remedies are to be sparingly exhibited, and, gradually, altogether withheld. In place of the calomel and opium, and ammonia, an occasional effervescing draught, with or without a little wine, according to circumstances, may be given five or six times a day; but the less that is now done in the way of medicine the better. Strong, spiced, beef-tea, arrow-root made with water, and flavoured with wine and spices, and fluid food of a similar nature, serve, at this period, a very useful purpose. Solid food of every kind should be denied for three or four days at least after collapse; the patient should not be permitted

to sit up too soon; and all his evacuations should be passed in the pan in bed. It will be prudent to guard against a too lax state of the bowels during convalescence; for which purpose, if necessary, some aromatic chalk powder, or a cordial draught, will answer sufficiently well. Aperients are not called for, for the most part natural evacuations appear spontaneously; but if the bowels be confined for thirty-six or forty-eight hours, and it appear desirable to give a laxative, it should be something very mild, such as a little blue pill at night, and a rhubarb draught in the morning, or a dessert spoonful of castor oil, with a few drops of laudanum; and in preference to repeating the doses, it will be safer, if requisite, to aid their operation by the use of a mild castor oil enema.

In elderly people a little port wine may be allowed during the day; and if the appetite be deficient, and the energy of the system be below par, some bitter tonic will not be misapplied. Nothing answers for this purpose so well as the infusions of angustura or calumba, with soda or ammonia.

These remarks of course do not apply to those cases which terminate in fever.

When a patient has once recovered from collapse, he is safe, with rare exception, from a future attack. The authors have never witnessed a second attack of cholera in the same individual.

PATHOLOGY OF CHOLERA.

The authors have no particular theories to support; nevertheless, they deem it right, briefly to state the usual post mortem appearances, and other phenomena, that present themselves in those who have died of cholera.

It often, nay usually happens, that a short time prior to death the warmth of the features and extremities returns: the centre parts of the body are never cold even during collapse; but just before death, and for a considerable period afterwards, the general temperature is more equalized, and the features and limbs are thus warmer after death than they might have been two hours previously. The discolouration of surface, which is popularly known under the name of "blueness," is in many instances not to be observed; by far the greater number never become discoloured at all; but in some cases there is a blueness beneath the nails, and a livid congestion, sometimes a mottling, of the limbs and posterior parts of the body. The features, too, are in this way occasionally discoloured, the ears being always the most early to shew it. This appearance is, in the majority of instances, very similar to that which would be pre-

sented in ordinary congestions of the small vessels, attendant on bronchitis; occasionally it partakes of a leaden cast, but seldom is it really *blue*.

If pressure be made on the skin with the finger, the blood is forced from the capillaries of the part, it becomes white, and but slowly returns to its former condition. The skin is inelastic, and for the most part insensible to irritants, so that strong caustic applications often produce no effect. There were two cases in the cholera hospital of St. Saviour's parish, in which concentrated nitric acid was poured and spread over the whole front of the chest and abdomen, not even a discolouration of the integument was effected by it. One of the patients was a delicate young female, with an infant at the breast; she died: the other a young man, who recovered; as reaction came on, there appeared two or three small spots about the pit of the stomach, where the acid was now producing a superficial slough. We have ascertained that the skin of dead bodies is very imperfectly acted upon by nitric acid.

A circumstance has been stated, as occurring in the bodies of those deceased of cholera, which has furnished abundant food for the lovers of the marvellous and terrific, and has probably given rise to the frequent belief, that persons who appeared to be dead were not yet really dead. It was stated in some Russian and Indian reports, that the bodies of cholera patients, for four or five

hours after death, were often seen to move convulsively; that the limbs were affected by cramps, and the whole body was so agitated by spasms, as to terrify the watchers. Some corpses are reported to have turned over on their sides, or even to have been thrown off the bed on which they lay by the force of these very convulsions.

The authors of this essay have occasionally witnessed modifications of this; slight twitchings of the facial muscles, and those of the limbs, are by no means rare; but in one instance which fell under their notice in the Borough, for an hour and a half at least after death, some of the limbs were agitated by tremblings, and the features were so especially affected, that the friends verily believed the man was not yet dead, but was vainly struggling to give utterance to his wants. In another example in the City, pretty severe spasms convulsed the arm and leg of one side during the space of a full hour after death. Minor degrees of the same phenomenon are not unfrequently met with. It seems to exist in those cases where spasms and sweating were prominent features during life, and where the patients have died rapidly after a few hours' illness.

Within the body are found certain appearances which are pretty uniform in their occurrence, and which, taken in the aggregate, are sufficient to furnish almost positive testimony as to the fact of cholera.

In the Head. — Brain firm and healthy; the vessels on the membranes injected with blood, arteries as well as veins, especially the latter, which are very well seen at the base of the skull when the brain is removed; both contain similar black grumous blood, and in some places long strings of fibrin may be drawn out of them. Within the brain itself there is likewise much blood, as indicated by the number of points that start forth when it is cut into slices. Watery effusion is not necessarily present.

The spinal marrow healthy, but the vessels distended with blood: the anastomoses of the sinus venosus, &c. are very beautifully apparent.

In the Chest.—Pleuræ, dry and sticky, with so tenacious a matter, that fibres of an inch or more may often be made to follow the touch. The lungs themselves perfectly healthy "*quoad cholera*," almost uniformly empty of blood, except a small infiltration towards the spine—the air tubes contain mucus — the small bloodvessels empty— the large veins, viz. the two cavæ, the mammaries, the jugulars, the subclavians, the intercostals, and all the great pulmonary trunks, gorged with blood. The heart lies flaccid in a pericardium, which is moistened by rather more than the usual quantity of "*liquor*." Unlike the other serous bags, the pericardium is not dry and tenacious, but well moistened. Coronary veins very full; arteries rather full; right auricle and ventricle

loosely full of blood, and each containing a grumous, loose, serous clot; left ventricle may contain a small quantity of blood, but the left auricle is closely empty. Aorta contains a considerable quantity of blood: from many of these vessels, even from the coronary arteries, long strings of dirty fibrin may be drawn forth.

In all these cavities and tubes, the blood is of a singularly black hue, and of a grumous, semi-coagulated consistence; both in colour and consistence it bears a close analogy to certain specimens of black currant jelly. This blood, thus half-coagulated in the body, will, if removed into a cup, gradually separate in many hours, into a very black clot, and a small proportion of serum.

The blood drawn from cholera patients during life is likewise very dark: it does not separate, or at best very imperfectly, after a long interval, into its two principal component parts. Cholera blood does not become florid on exposure to air, except in a very limited degree.

If blood be taken during the premonitory stages of cholera, it is not necessarily, though ordinarily, dark.* Such blood very generally separates as in other cases. For the chemical constitution of the blood, secretions, and excretions of cholera, we refer to the various scientific investigations of Drs. Prout, O'Shaughnessy, Stevens, Mr. Prater, and others,

* Perhaps, however, if closely inspected, it may have a slightly darker shade than if it were not cholera.

who have more particularly directed their attention to such enquiries.

In the Abdomen.—The belly is usually flat and not full. The peritoneal cavity dry and plastic like the pleuræ. On laying it open, the small intestines present a more or less intense blush, of a flesh colour; many of the ramifications of the smallest vessels may be distinctly seen. The large intestine, towards the sigmoid flexure is in general contracted, but this is by no means uniform; there is no inordinate vascularity here. The stomach is only sometimes so injected—this appears to be more often the case where vomiting has been copious. The interior of the alimentary tube furnishes some well marked appearances. The stomach contains more or less of the fluids last taken into it; its mucous membrane coated with a quantity of thick adherent mucus, on which may be seen the various remedial articles that have been administered. In some cases, this mucus is separated off, so that the coat of the stomach lies bare in irregular patches, which in such places is generally vascular. On removing this tenacious substance, irregular portions of injection may be observed, with numerous little elevated glands scattered here and there over the surface. The duodenum seldom contains any bile, but this depends on the period of the disease at which death may have taken place; its inner coat is smeared with a creamy, pasty substance, intermixed in no

regular proportion with muco-gelatinous clots, which in some instances are green and bilious. As we descend the intestine, the same appearances are found; but in proportion as we advance, the contents are more and more fluid, so that at length we arrive at a part where it has precisely the rice-water character of that passed by stool. Throughout the whole course of these bowels, the mucous membrane is studded with enlarged glands both singly and in patches; towards the valvula ilii the latter are very prominent and frequent, and in so advanced a stage as to leave it doubtful, whether some of them are not actually in ulceration.* The large intestines are usually pale within, and contain similar fluid to that in the small. Even here the solitary glands are enlarged and diseased.

The mesenteric glands are large and hardened. The thoracic duct which we examined in one case was perfectly empty.

The liver empty of blood in its minute structure —the large vessels, especially those from the vena portæ full of dark treacly blood. The gall-bladder distended with bile: the ducts permeable down to their opening into the duodenum, at which point there is spasmodic occlusion. This was well demonstrated in a case which we inspected with the aid of Mr. King, of Guy's. We were examining the pancreas, which in cholera is very bloody, and

* The authors have examined cases where this appearance was slight, or even totally absent: they are, however, rare.

were surprised to find the pancreatic ducts full of bile. On investigating further it appeared that in this instance the pancreatic and common biliary ducts had combined about a line before entering the duodenum, opening into the gut by a single orifice; there was not a particle of bilious tinge in the duodenum, but the bile had descended the common duct as far as this junction with the pancreatic duct, and finding no access into the duodenum had regurgitated freely into the pancreas.

The spleen is so far empty of blood as to appear shriveled. The kidneys present nothing unusual, their large vessels full of blood. The urinary bladder contracted firmly like a fig, and buried under the pubic arch; sometimes there is a minute quantity of urine in it, which is acid, or it is lined by the mucous secretion natural to it. When urine is passed during the disease it strongly reddens litmus paper.

The ganglionic system. — We have carefully examined this in three or four instances, and have detected no deviation from its ordinary state and appearance. In one of these examinations, that of a little girl, we had the able assistance of our friend Mr. Edward Cock, demonstrator of anatomy at Guy's, whose tact in dissection, and accurate anatomical knowledge need not here be insisted on.

The above are the appearances of those patients who die in collapse; we have not sufficiently in-

spected consecutive cases to justify us in reporting upon their morbid anatomy.

We should not omit to state that cholera patients exhale a very peculiar morbid smell from their persons; the evacuations are mawkish and offensive, and the odour which is not to be mistaken, hangs about the nostrils for a long time. In sweating cases particularly, the exhalation is very disagreeable, and so penetrating, that the whole of a large house is speedily pervaded by it. The profuse perspiration of cholera slightly reddens litmus. The alvine discharges are alkaline. The matter vomited is not easily tested owing to the unavoidable mixture of foreign matter. We have found it alkaline now and then, and at other times, even when alkaline remedies had been given, it has been acid. Cholera corpses pass very quickly into decomposition.

THE CONSEQUENCES OF CHOLERA.

Although patients sometimes rapidly recover from collapse, without the interruption of bad symptoms, in the manner which we have already detailed, this is by no means always the case; for in many instances they have to undergo the ordeal of another stage, which is as important in its treatment, and unfortunately as fatal in its general results, as was the primary stage of collapse itself.

In our observation, this after stage has been more common, in the late and present irruption of cholera in London, than it was last spring; it is not a consequence of any particular plan of previous treatment, since it occurs equally where large measures of brandy and opium have been taken, as it does where the only remedy has been cold water, without a single particle of stimulant treatment in any form. It bears no proportion in intensity to that of the first stage, for severe consecutive symptoms succeed a very mild and short stage of premonition with as much irregularity as is manifested on the other hand by those examples, where decided collapse gives rise only to a mild form of disease. In general, however, the most formid-

able consecutive results have been preceded by confirmed collapse.

There are no decided indications in any of the early stages, which can point out that consecutive fever is to follow; there is, however, a general expression about the patient which it is altogether impossible to describe, but which is so cognizable by a practised eye, that it may afford him grounds for a very fair surmise, as to what is to follow. Consecutive symptoms have always, in the cases we have seen, been preceded by a furred or otherwise disordered tongue.

It is customary to talk of the consecutive *fever* of cholera, but *fever* is by no means the only result; for the sequelæ of cholera consist besides fever, of a number of anomalous affections, which are as difficult to explain as they are intractable in their progress. Febrile symptoms certainly predominate in most cases, but there are those, nevertheless, in which none of the ordinary marks of fever are to be found, and which are perhaps more fatal than the very fever itself.

The very anomalous and inexplicable character of these various affections, oppose at the outset an almost insuperable obstacle to their classification; but as it is obviously impossible to attempt their delineation, without something like an arrangement, our readers will perhaps not refuse us the privilege of making such an artificial division of of them, as, however otherwise objectionable, may

be most convenient in enabling us to treat of them successively in something like regular order.

We shall accordingly endeavour to comprise these affections under the following heads: —

1. Fever.
2. Affections of the sensorium, not comprised in fever.
3. Affections of the chest, not comprised in fever.
4. Affections of the abdomen, not comprised in fever.
5. Miscellaneous affections.

1st. *Fever.*

The fever is of a peculiar kind; peculiar in its symptoms; intractable in its progress; and fatal in its general termination. It is ushered in in the usual manner; the pulse rises, the tongue becomes dry and brown; sordes collect about the teeth; the skin is harsh and dry; the mind rambling and incoherent; the cheeks congested, the stools sometimes fæculent and bilious; occasionally there is a bilious vomiting; the urine is commonly arrested, but in some examples it has been otherwise; gradually the pulse declines, and often without manifest affection of any particular viscus, the patient falls into a pulseless collapsed condition, and dies.

This fever does not necessarily arise directly from the stage of collapse — for we have seen

cases where the patient seemed past all danger — having got through a formidable collapse; but in two or three days' time, the urine has ceased to flow, the tongue is observed to be dry, the patient manifests indications of delirium, he attempts to get out of bed, is drowsy and very sleepy during the intervals; so that if he be roused, he answers rationally enough, and says he is quite comfortable, but instantly relapses into sleep again.

The treatment of this affection is very uncertain, or more correctly speaking, it is very unsatisfactory. Its early symptoms seem to indicate depletion and antimonials, but this is only to be done at its invasion; for, in a very few hours, low, adynamic symptoms manifest themselves, from which there is little hope of extrication.

We have no specific treatment to recommend, independent of that founded on established medical principles: the ordinary remedial measures are applicable here as in other low fevers, but so far as we have seen, few cases recover from an advanced stage of this fever. If the individual be carefully watched, so that its approach is detected; if at this time the pulse is strong, the cheek hot and flushed, and when delirium is commencing; if, at this period, a small quantity of blood be taken from the arm, and mild mercurials with Dover's powder, or hyoscyamus and ipecacuanha be administered, with some of the ordinary saline remedies, the further progress of the disease

may occasionally be cut short. But, unfortunately, often it is not so ; the symptoms go on, wine, ammonia, quinine, serpentary, and the like, are indicated by the fact, that the powers of life are ebbing away at a rapid rate, and that death is at hand ; nothing stays its progress, it approaches steadily and surely; the newly-formed anticipations of recovery are dissipated, and the victim is snatched away from existence in a period of time varying from two or three days to a fortnight, after the commencement of fever.

The consecutive fever of cholera is generally severe as above ; but often it assumes milder forms, and is then amenable to common treatment. If local derangements supervene, they must be met, and treated accordingly. In all the consecutive stages of cholera, care should be taken to guard against undue action on the bowels; patients' powers are often sunk irremediably by the effects of a single dose of purgative medicine. The state of the bowels, indeed, is generally such as not to call for it. In this fever, gastro-enteritic irritation or inflammation is present, in almost all cases ; this is marked by the red glazed appearance of the tongue ; by tenderness and soreness of epigastrium, by irritability of pulse, by the prevalence of occasional and irregular flushes of the cheek, and other usual symptoms ; to which may be added, a more or less degree of rambling and incoherence. The bowels are at first costive ; but, as soon as

aperient medicine acts, they are liable to become quite the reverse; the stools, thus produced, are bilious and offensive, with now and then a bloody streak. The urine is sometimes arrested, at other times it flows as usual.

The application of a few leeches to the epigastrium, followed by hot fomentations, is the readiest means by which to combat this affection. The leeches may be applied, from time to time, till the tenderness on pressure be removed; and it will be found, likewise, that this will more effectually relieve the stupor or delirium, than would be accomplished by any local measures directed to the head itself.

The internal treatment is simple, there being little to be done in the way of direct interference. If the bowels be confined, a little castor oil; if relaxed, chalk mixture. Two stools a day should, on the average, be thus procured. The diet should be cautious, and consist of milk, arrow-root, a little mild broth, and the like. The patient must maintain the recumbent posture, and his mind be preserved as much as may be from vexation and excitement. The execution of any more active measures, must be left to the circumstances of the individual case, and the judgment of the practitioner, at the moment.

2dly. *Affections of the Sensorium, not Fever.*

As a consequence of cholera, the sensorium is

occasionally disturbed in one of two forms, independent of fever — these are, stupor and delirium.

(*a.*) In the reaction from collapse, it may happen that the patient betrays signs of *exceeding* drowsiness; he is sensible when roused, but immediately goes to sleep again. The sleep is heavy, and the breathing slow; the pulse is likewise slow and sluggish. This oppression increases; he is scarcely to be roused at all; the breathing becomes almost stertorous; the pulse fails; he swallows whatever is put into his mouth mechanically; the urine and stools are passed unconsciously in bed; the pupils are insensible, and there is evidently congestion about the head, the skin being all the time unfeverish, and the tongue moist and clean. This state is generally fatal; for, though depletion now and then checks the disorder, it more frequently happens that there is no power in the system to endure depletion. We are not able to speak practically of the benefit of any plan of treatment for its cure.

(*b.*) *Delirium.*—We have seen two or three cases, where patients have been the subject of delirium, with a quiet natural pulse, soft skin, clean tongue, and the like. Their character was something between that of delirium tremens, and mania; but they were not benefited by sedatives on the one hand, nor by depletion, counter-irritants and cold, on the other; they all died. There was this pecu-

liarity in their invasion, that they were all preceded by two or three days' apparent convalescence, from the earlier stages of cholera.

3rd. *Affections of the Chest.*

We have met with but one example of derangement in the chest, consequent on cholera. This was an instance of acute bronchitis occurring in a female, characterized by the usual symptoms, and in no way differing from ordinary bronchitis. The attack was severe; the blood that was withdrawn, was florid and thickly buffed; but owing to the depression she had already undergone in her earlier symptoms, she was not able to endure the depletory measures necessary for the suppression of an active inflammation, so that she did not recover.

4th. *Affections of the Abdomen.*

These are generally combined with fever; but still there are some of them which cannot fairly be comprised under that head: they are,—bloody stools—suppression of urine—bilious vomiting and purging.

(*a.*) When bloody stools occur during collapse, the patient never reaches re-action; when they begin in secondary fever, he surely dies, except under the condition that these bloody stools have been plainly induced by the operation of large mercurials, in which case they may sometimes be

remedied by checking the incessant action of the bowels, by means of astringent and mucilaginous medicines, with opium. Bloody stools, except under the abovementioned condition, occur only in elderly people, whose constitution is broken down by habits of intemperance, and whose vascular system is probably already in a state of organic disease.

(*b.*) *Suppression of Urine.*—In the progress of reaction, one of the most favourable symptoms is the secretion of large quantities of urine; and so long as this is absent, the patient cannot be said to be out of danger. Two or three days occasionally elapse before urine is voided; during this time the patient must be carefully watched, and existing symptoms be met by appropriate measures. There is, during the suppression, a want of energy about the individual—a drowsiness of the nervous system—a loss of appetite—and a number of unsatisfactory little signs not easily described, but which give way as soon as the secretion is restored. We think we have seen benefit in such cases from frictions of camphorated mercurial ointment.

(*c.*) Bilious vomiting and purging during reaction are not uncommon, particularly the former. As reaction comes on, vomiting increases, becomes bilious, and is sometimes of a very dark green colour. The stools from the state of rice water are gradually tinged with bile; and, although there is

often a large quantity of bile so passed, they are not fæculent in smell: the urine is suppressed. This condition of things indicates serious results, if not controlled: the patient, after enduring it two or three days, becomes exhausted, loses his pulse, and dies; or the tongue becomes brown, the pulse sharp, and a severe gastric fever sets in, whose usual termination is in death.

The method of checking this disturbance, which can only be done in a few cases at the period of its first invasion, consists in the application of leeches and counter-irritants to the pit of the stomach—occasional effervescing draughts, and calomel and opium: but it sometimes happens, that the irritability of stomach is such, that even these remedies are constantly vomited back; in this case benefit may frequently be derived by keeping the stomach perfectly empty, and by applying remedies by the rectum alone, in the form of opiate enemata, with or without the addition of a little port wine or brandy, according to the intention we may have of supporting the powers of nature.

The treatment of this disorder, when it merges into fever, has been already spoken of.

5th. *Miscellaneous Affections.*

Under this head we include a variety of irregular affections that spring up from time to time in progress of the disease, many of which are even protracted to a long, indefinite period, and constitute a disease

which might, without much impropriety, be termed "*chronic cholera.*" These are so uncertain in their origin, existence, and effects, that it would be vain to attempt any delineation of them in this place; suffice it to say that they are, many of them, amenable to the power of ordinary remedies; and that, where they are not so controllable, we know of no other means by which they may be specifically relieved.

There is, however, one affection which we must not omit to notice under this head. We allude to a peculiar urticarious rash that occasionally appears on the bodies of patients in the protracted examples of the consecutive symptoms of cholera. It is preceded by head-ache, fever, general itching of the surface, and irritation of the gastric organs; and in the three or four instances in which we have noticed it, every bad symptom has given way on its approach, and convalescence has been rapidly established. A very accurate description of it has been given by Dr. Benjamin Babington, in the Medical Gazette, for the 4th of August last.

EXPERIENCE OF DIFFERENT PLANS OF TREATMENT.

Although this treatise is especially drawn up with a view to declare the opinions and method of treatment adopted by its authors in cholera, they feel that they are not only justified in doing so, but even called upon to make a few observations upon other methods of cure than that which they have themselves recommended. They cannot be supposed to be ignorant that remedies have been offered to the public, from which a far larger proportion of recovery is promised, than from those treated of in the preceding pages. Eight out of ten are to rise up out of collapse under one plan of treatment, and none at all are to die under another, excepting only those who have organic, and otherwise fatal derangement about them.

The authors of this essay, feeling that they had to contend with a pestilence, whose advanced stages for the most part defied the means of remedy in ordinary use, have never been backward to give a trial to any medicine that held out reasonable expectation of a more satisfactory result than they had been accustomed to meet with from their own practice. They have been disappointed

in the trial. Whether this want of uniformity in result depend on the fact that the cholera assumes different types in different localities, or that all men are not agreed as to their precise ideas of the term collapse, or on any other cause whatever, they cannot take upon themselves to decide.

In the succeeding remarks they beg to disclaim every feeling of personality towards those individuals whose particular views they may have to oppose—with their theories they have nothing to do—with their practice only have they any concern, and in this spirit they will not shrink from the scrutiny that awaits them.

This is not the place to enter minutely into all the remedies that have been proposed for the cure of cholera; many of them are already exploded, and others are fast tending to the same fate; but there are two or three of them to which public attention has been more especially attracted, by the reasonable measure of success which they promised, and by the very beautiful theories by which they were justified. We shall only have space for an examination of three of these methods of cure, viz. — "large doses of calomel," "venous injection," "the saline treatment."

1st. *Large doses of Calomel.* — To the plan of administering very large doses of calomel, such as ten or twenty grains every hour during collapse, we have this objection, it is altogether unnecessary, and sometimes succeeded by bad effects.

To calomel itself, in more reasonable doses, we have no objection, as may be gathered from the purport of our former remarks. Every useful purpose that mercury can be expected to accomplish is realized by the more moderate doses, but the effect of the larger quantities is to promote an inordinate excretion of bile, *unmixed with fæces*— to excite irritation of the intestinal mucous membrane — to bring on frequently bloody stools — and to terminate the case either by relapse into collapse, or by a severe attack of gastric fever; such, at least, has been the result of those cases in which we have pursued this plan of treatment.

2dly. *Venous Injection.*—We have tried this in twelve cases, and the event has been twelve deaths: all these cases, were it is true, apparently moribund when the operation was performed. We have varied the method of performing it; in some instances injecting only a few ounces, in others, as many pints; and though the immediate effect in most of them was to bring on, as it were, a resuscitation to life, yet was the termination of all alike. Some relapsed into collapse, and died rapidly; some had difficulty of breathing induced, which, contra-indicated its repetition, and others died with symptoms of cerebral oppression. In one of these last examples, on examination after death, we detected effusion on the brain, and within its ventricles, of a fluid, very similar in taste, appearance, and alkaline reaction, to that which had been in-

jected into the vein. We have found the blood in the bodies of such persons just as black as in those who had died without this medication.

The injection of warm water alone produced the same reaction as that of the saline solutions, from which we are led to infer, that this method of treatment acts only as a mechanical, and not as a specific stimulant; but since we know that it has succeeded in the hands of others, and that it is a remedy applicable only to otherwise hopeless cases, we see no reason to despair, that in the progress of improvement, new and satisfactory data will be elicited, which shall enable us to discriminate, without empyricism, the conditions under which it may be rendered available as a remedial agent.

3rd. *The Saline Treatment.*

The result of our trial of this treatment is as follows: —

	Cases.	Recovered.	Dead.
Treated upon salines up to the period of their termination	16	1	15
Salines at first, and when collapse was not averted by them, or when they disagreed, other means adopted	6	4	2
A mixed saline treatment, other remedies being given at the same time	8	0	8

The above table will suffice to express the estimation in which this plan of treatment is regarded by ourselves; but, as we desire only to arrive at the truth in these our investigations, and do not wish that our assertions shall be received without proof, we shall, with the reader's permission, furnish him with a specimen or two of the practice alluded to, under each of the above heads.

1. *Treated solely upon Salines.*

Case 1.—July 27. Mary Clare, æt. 48, an industrious, working woman, admitted with the usual symptoms of cholera, which had followed upon the administration of *saline* purgative medicine; taken ill twelve hours previously with purging. On admission she was verging upon collapse, but her pulse was still distinctly countable at 96, though feeble. The temperature beneath the tongue was 86°, Fahr.; her other symptoms were well characteristic of cholera.

Hot bottles were applied to the feet, and the following medicine prescribed:—

℞ Sodæ muriatis ʒ ss. potas. oxym. gr. x. ft. pulvis et aquâ. statim sumend.

This was vomited, and repeated in half an hour; after which, she was to take the following powder every quarter of an hour:—

℞ Sodæ carb. ʒ ss.
Potass. oxymur. gr. vii.
Sodæ muriatis gr. xx. ft. pulvis.

Sinapisms were applied to the back and belly. She took her powders regularly, without a single intermission; retained twelve, and rejected five of them. Every symptom increased with frightful rapidity; and, in five hours after the commencement of the treatment, she was a corpse.

Case 2.—Job Blackwell, æt. 45. August 3d, 9 P.M. Of dissolute habits; ill since morning; but had derangement of bowels, in slight degree, some days. On admission he walked up stairs; pulse 108, steady; tongue's temperature 91°, Fahr.; had not purged for an hour; other symptoms as usual.

This man took the powders, as in Case 1, every half-hour; with an effervescing draught occasionally. Mustard poultices were also applied, and hot saline enemata administered. He took his medicine regularly, without vomiting; the purging increased, so as to soak through the bed on to the floor; the pulse fell in power, and quickly ceased to beat; the respiration was distressingly rapid and oppressed; and in six and a half hours, from admission, he died.

Case 3.—Elizabeth Gillett, æt. 50. 2, P.M. July 15. The report in the case book is, that this woman's "symptoms were as yet incipient, her pulse and warmth being good." She had been ill six hours, and had been under treatment an hour before admission, on the same principles as those adopted afterwards.

Sinapisms, brine fomentations to legs.

℞ Sodæ carb. ℈ i. sodæ muriatis gr. xv. aquæ ℥ i. M.

℞ Acid. tartar. ℈ i. aquæ ℥ss. M.

This was given every quarter of an hour, in the state of effervescence. She took these regularly; vomiting three or four of the first doses, but afterwards retained them. As the disease advanced, the muriate of soda was increased to twenty grains for a dose, but the fatal symptoms progressed with obstinate rapidity, and, at midnight, she died; having been eleven hours under treatment.

The prescription in Case 3, was given by Dr. Stevens himself to Mr. Roberts, of Finsbury-Circus, not with reference to this particular case, but to cholera generally. Mr. R. and Mr. J. A. Hingeston superintended the administration of the means.

These three cases speak for themselves, and we have others like them. It will be perceived that in all three, the treatment was begun before collapse had set in; that collapse was not averted by their means; and that death ensued in an unusually short period of time, although saline remedies had been administered — a period, be it further remarked, bearing a pretty fair rule of three proportion in the respective cases, to the intensity of the remedial agents administered in each. Thus, Case 1, took her medicines every quarter of an hour; and died in five hours: Case 2, took his every half-hour; and lived six and a half hours:

whilst Case 3, who only took a milder form of the same articles, endured her treatment fully eleven hours.

The Case that recovered under Salines.

Case 4.—Benj. King, æt. 31. August 31st, noon. Since morning had been purged nearly every five minutes, with attendant vomiting and cramps. He applied about eleven A.M. at Guy's Hospital, where, there being no accommodation for such cases, they gave him a strong aromatic chalk draught, with ammonia and opium, and sent him to Abchurch-lane. He walked all the way—a distance of about a mile—and was, consequently, a good deal depressed on admission; but, as soon as he got into a warm bed, he rallied; his purging had ceased, his vomiting had been stayed, and he said he felt himself quite another man since the draught they had given him at Guy's. This man was put *now* upon the saline remedies, as in Case 2; but got well without the recurrence of those bad symptoms that had been already arrested at the time of his admission.

2. *Cases in which Salines were not persisted in.*

Case 5.—Rebecca Collins, æt. 51. Sept. 12, noon. Ill thirty hours with premonitory diarrhœa, and admitted whilst the dejections were as yet fæculent.

A saline powder every half hour as Case 2. She vomited five or six powders, but retained several effervescing draughts; in the evening the evacuations had become quite serous, the pulse was failing, and for the first time fears were entertained for her safety. The powders were left off. Hot salt and water enemata were thrown up. A sinapism was applied; and some warmly spiced beef-tea occasionally, with a little brandy, or gin and water, were alone given. From this moment she rallied, and is now well.

Case 6.—June 30. James Jones, æt. 34; walked into the house at 10½ P. M. with the early but severe symptoms of cholera; pulse 84, steady. Tongue's heat 88° Fahrenheit. Ordered as follows:

℞ Sodæ carb. ℈ i. sodæ muriat. gr. xv. potas. oxym. gr. x. ft. pulvis—

the powders to be given every quarter of an hour; but as they did not remain on the stomach, they were altered to 15 grains of the oxymuriate of potash every quarter of an hour, with one of the first prescribed powders every hour.

Sinapisms and stimulant embrocations were also used.

At three the following morning, being four hours and a half after he walked into the house, he was in perfect collapse, although he had retained the greater part of his medicines. The plan was altered to calomel and ammonia; and, as a last re-

sort, the injection of salts into the veins was also tried, but all in vain, for he died at 6 P. M. on the 1st July.

3. The eight cases which were treated on a mixed saline plan were some in which modified doses of the ordinary neutral salts were combined with opium,* ammonia, brandy, and the like, but it will be seen we had eight deaths. It may fairly enough be objected to these cases, that they prove nothing, inasmuch as the good that was done by one remedy was immediately undone by the other. We certainly are not disposed to deny that it may have been so, but taken in the context with the rest of our experience, we think we may, without cavilling, venture to say, that the salines, at least, were not the ingredients to which the former part of the sentence applies.

After the narration of the above cases, it is scarcely necessary to repeat, that our opinion of "the saline treatment" *in genuine cholera* is decidedly unfavourable to it; that it has not even the redeeming quality of being harmless. With the success attributed to it in other places, we have nothing to do in this essay, which contains only a transcript of the personal experience of its au-

* Those who object to opium in cholera, on the ground that it darkens arterial blood, will surely not prohibit the use of the *alkaline salts* of opium. The authors of this essay find that the vegetable alkaline salts generally — especially acetate of morphia — *redden* black blood.

thors. They have not hesitated to express their opinions boldly, and they know that they have done so honestly. It cannot be objected to them that they are prejudiced judges, for those who know them know well that one of them at least was, in the early part of his practice, captivated with the ingenious theory of the saline treatment, and disposed, in spite of non-success, to persist in a further trial of its merits.

They are sorry in these views to differ with many whom they estimate most highly; they are sorry above all to differ with the highly-gifted and ingenious proposer of the treatment in question, to many of whose other opinions, not connected with cholera, they most cordially consent; but neither the respect which they owe to their seniors, nor the deference which they are prepared to pay to however enlightened talent, or brilliant genius, will ever induce them to lend their assent to doctrines, which in their consciences they believe to be not only not beneficial, but even positively hurtful.

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